SYNOPSIS

THE NUMBER OF nurse-midwife–attended births in U.S. hospitals has jumped tenfold in the last 20 years, rising from just 19,686 in 1975 to 196,977 in 1994. Certified nurse-midwives (CNMs) focus on childbirth as a normal event, emphasizing the educational and psychosocial aspects of care and the judicious use of technological interventions. CNM care appears particularly well suited to help solve two difficult problems in U.S. obstetric care—our country's slow progress in improving the health status of newborns and the excessive use of medical interventions during childbirth. Despite the fact that CNM care has been found to be safe and cost-effective, only a small fraction of those pregnant women who could benefit from CNM care use midwifery services. Lack of consumer awareness is part of the problem, but barriers also exist to accessing CNM services. Sixty-four percent of CNM practices responding to a survey reported practice restrictions, most commonly due to state laws, hospital policies, and inappropriately restrictive physician back-up. One state, Florida, is aggressively promoting the use of CNM care as the standard of practice for healthy pregnant women.

Obstetrical care in the United States is burdened by soaring costs and a paradoxical inability to bring rates of infant mortality in line with those of other developed countries. A look at the costs and outcomes of obstetrical care demonstrates that a greater reliance on the use of certified nurse-midwives (CNMs) could help solve these problems. Midwifery has a good track record with regard to quality of care, it represents a good value for health care dollars, and it rates high in client satisfaction.

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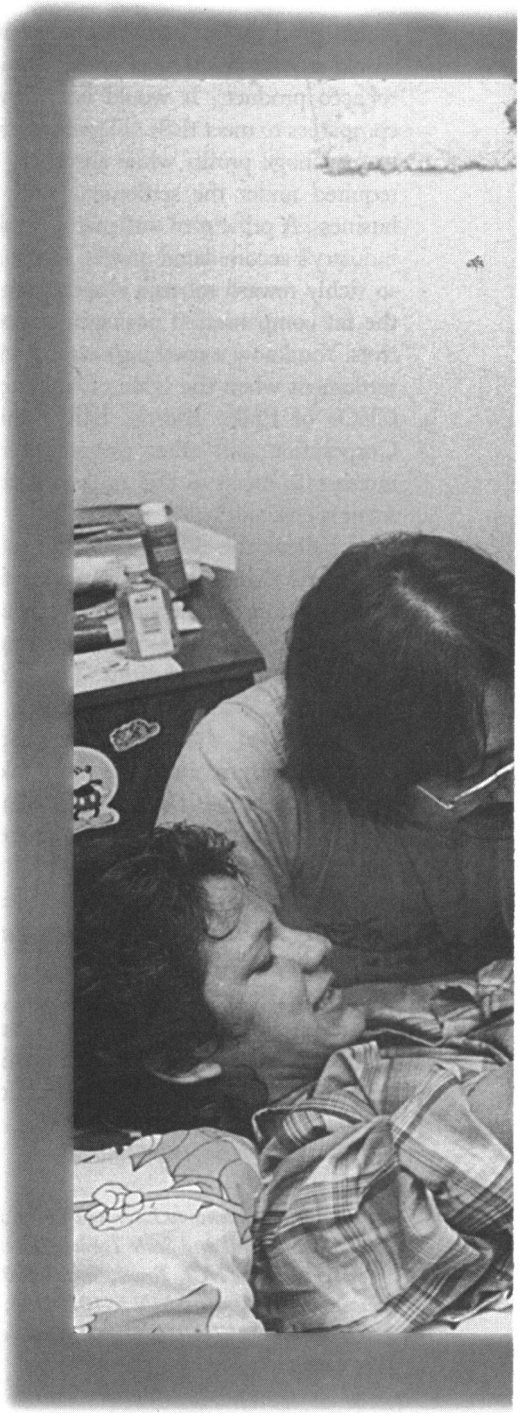

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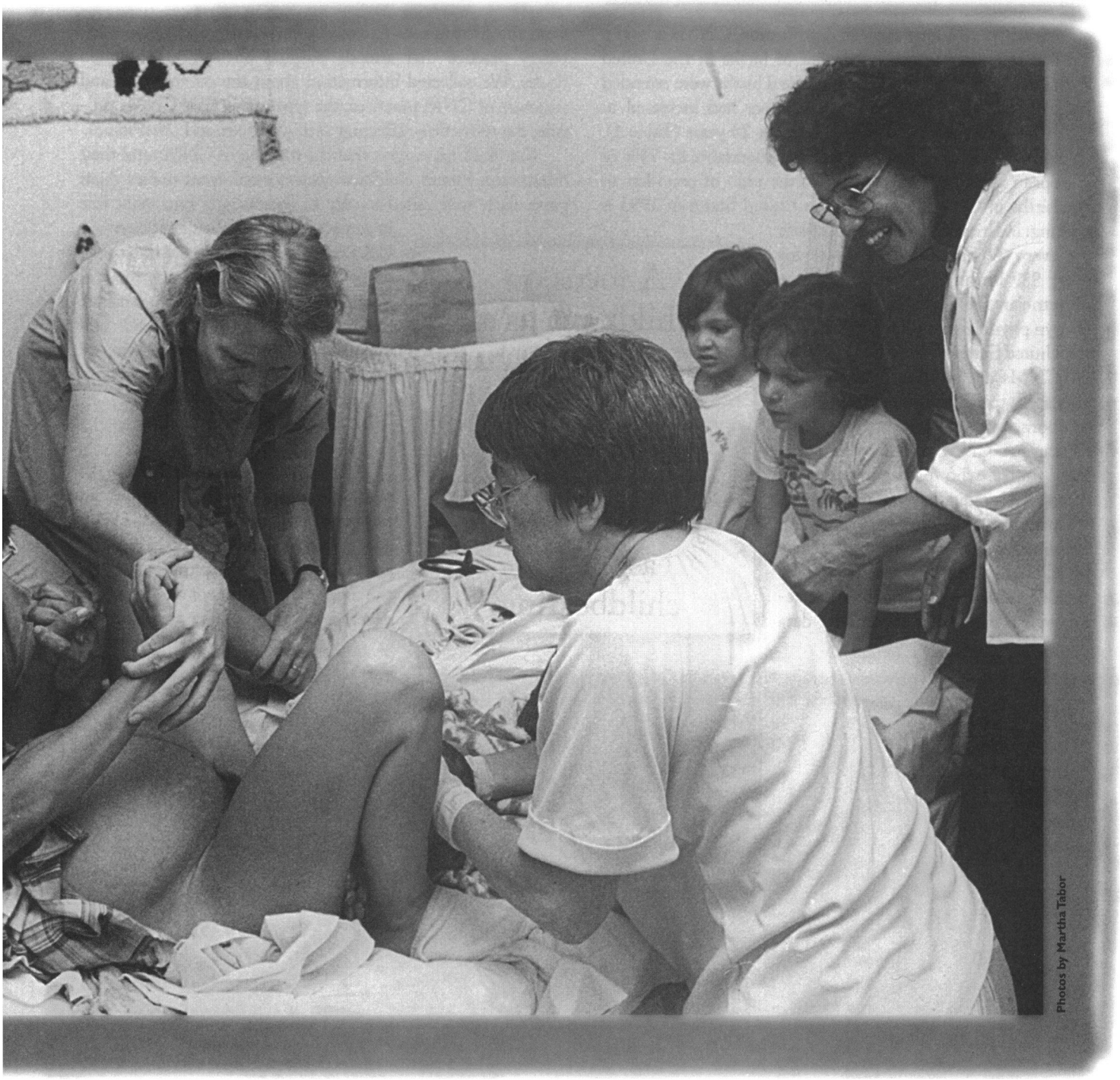


Photos by Martha Tabor

IDWIFERY
Alternative

Members of a long neglected profession, CNMs attend a small, but rapidly growing, number of births in the United States. In 1975, only 19,686 U.S. hospital births were attended by nurse-midwives. By 1994, the number had increased to 196,977—a tenfold increase in just under 20 years (Table 1). In contrast, midwives are the principal attendants for 75% of European births.[1] A comparison of the ratio of providers to live births in Great Britain and the United States in 1993 is striking: in Britain we find one midwife for every 22 births (one midwife for every 889 births in the U.S.) and one obstetrician for every 857 births (one ob/gyn physician for every 119 births in the United States).[2]

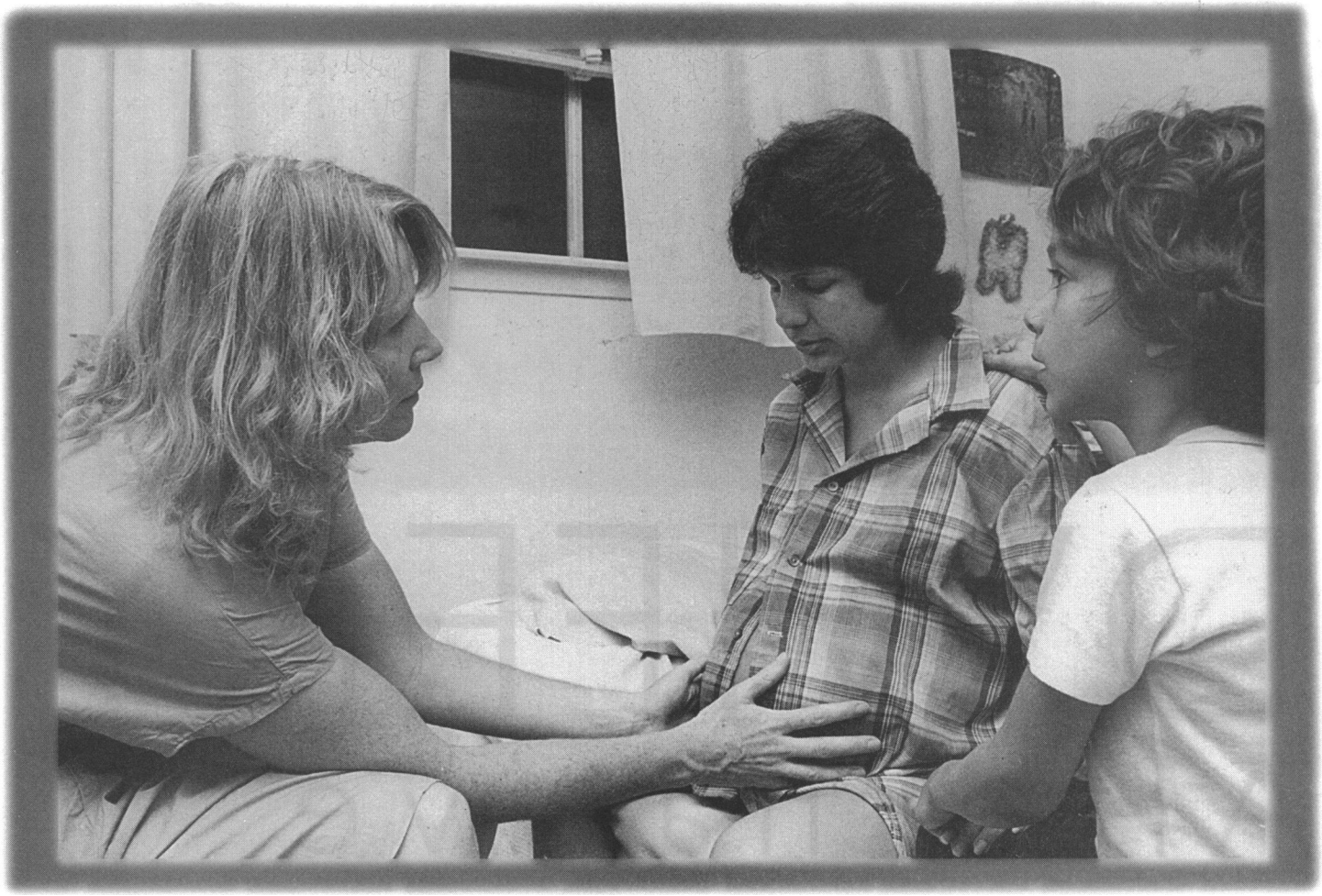
CNMs are primary care providers educated to give routine maternity, newborn, and well-woman gynecological care. A CNM is a licensed registered nurse who has completed an accredited graduate level program in midwifery and has passed a certification examination. In September 1994, Public Citizen's Health Research Group decided to take a closer look at nurse-midwifery care.[3] We assembled data from the literature and mailed a survey to every nurse-midwifery practice that attends hospital births in the United States. We collected information about the organization and structure of CNM practices, the types of services CNMs provide, the restrictions affecting their practices, and other issues.

Our findings suggest that the training of CNMs and their orientation toward childbirth as a normal event makes them particularly well suited to play an increasingly important role in remedying two difficult problems in U.S. obstetric care—the excessive use of costly and often unnecessary medical interventions during births to normal, low-risk women in U.S. hospitals and our country's slow progress in improving the health status of newborns.

A focus on childbirth as a normal event has allowed nurse-midwives to address more than just the medical aspects of childbearing.

The Cost of Care

Certainly the appropriate use of obstetric procedures has added an important measure of safety to the labor and delivery process for both mothers and infants who demonstrate need, but the near-blanket use of technologies developed for high risk cases gives cause



for concern. Most pregnancies and births do not require medical intervention, but certain obstetric procedures such as ultrasonography and electronic fetal monitoring are used in the majority of deliveries (Table 2).

A study conducted by Public Citizen's Health Research Group of utilization of cesarean surgery found that approximately one-quarter of the women (22.6% in 1992) who pass through the doors of a labor and delivery suite in U.S. hospitals undergo this major abdominal surgery.[4] Many of these operations, which pose a greater risk of maternal complications than vaginal delivery, are medically unnecessary and thus squander billions of valuable health care dollars in a country where 30% of mothers are estimated to receive inadequate prenatal care.[5] Additionally, ultrasonography was used during slightly over 60% of pregnancies resulting in live births in 1994 even though the American College of Obstetricians and Gynecologists (ACOG) does not recommend the routine use of ultrasonography during pregnancy.[6] Although no adverse effects from ultrasound use have been identified, randomized, controlled trials have not found any significant positive effects on infant outcomes, leading the ACOG to conclude that "the routine use of ultrasonography cannot be supported from a cost-benefit standpoint."[6]

Electronic fetal monitoring (EFM) is also not recommended for routine use on all women in labor, yet 79.6% of all live births in 1994 were reported to involve some electronic monitoring. What is particularly distressing about the routine use of EFM is that a number of randomized studies have shown that for low-risk labors, EFM increases obstetric intervention (both cesarean delivery and use of forceps or vacuum extractor) with no clear benefit for the fetus.[7]

Discouragingly, while one segment of women in our society (low risk women with normal pregnancies) are often overwhelmed by an inappropriate style of obstetric care that favors excessive use of procedures, including some whose efficacy and even safety are questionable, other women (the poor and uninsured) often struggle to obtain appropriate prenatal care.

What is needed most often from obstetric care providers is a focus on prevention and early detection of selected problems, steady emotional support and encouragement, and the constant vigilance necessary to spot serious problems should they arise. This would seem a role more suited to nurse-midwives and their noninterventionist philosophy of care than to the more action-oriented physician.

The Outcome of Care

It has been called the perinatal paradox—the United States's inability to make significant strides in improving the overall health of newborns while spending vast sums of money on obstetric and neonatal care.[8,9] While in absolute terms, infant mortality rates in the United States declined between 1962 and 1994, the relative position of the United States in the ranking of developed countries with populations over 2.5 million residents has steadily worsened for most of this period, decreasing from 12th best in 1962 to 21st in 1994.[10,11] We are not making the kinds of improvements in infant mortality rates needed to retain our rank among other developed countries, much less advance our position.

Table 1. Number of in-hospital midwife-attended births, United States, 1975–1994

Year	Number	Percent of all in-hospital births
1975	19,686	0.63
1981	55,537	1.55
1987	98,425	2.61
1989	125,451	3.14
1990	141,953	3.45
1991	160,731	3.95
1992	178,537	4.44
1993	189,913	4.80
1994	196,977	5.04

NOTE: Totals represent all births attended by midwives in hospitals including CNMs and other midwives. According to the National Center for Health Statistics, it can be assumed that almost all births attended by midwives in hospitals were delivered by CNMs.[5]

SOURCES: References 5, 22–25.

CNM=certified nurse-midwife

One major difference between the United States and the countries that outrank us with regard to infant mortality is that these countries all have some form of a national health program. Another difference is that midwives provide much of the prenatal and labor and delivery care in all of these countries except Canada.

Low birth weight (LBW) is the driving force behind a large share of the infant mortality rate. In 1991, 7.3% of infants were LBW babies (weighing less than 2500 grams at birth), and these infants accounted for 61.4% of all infant deaths that year.[12] Researchers have identified a number of risk factors for LBW, including younger and older maternal age, high parity, poor reproductive history, low socioeconomic status, low level of education, late entry into prenatal care, low pregnancy weight gain or low prepregnancy weight or both, smoking, and substance abuse.[13] Although not all of these risk factors are susceptible to intervention, those that are might respond positively to the careful screening and constant encouragement of a knowledgeable nurse-midwife; a provider who is more likely to spend considerable time with the pregnant woman, educating her on good health habits, counseling her on nutrition, and even visiting her home.

Building the Case for Nurse-Midwives

Individualized care. Every researcher knows the bias of giving attention: small groups of schoolchildren outperform large ones; cuddled newborns flourish; employees listened to work harder and have less turnover. Not surprisingly, the same is true for maternity care. The Women's Institute for Childbearing Policy described the ideal maternity care

provider from the perspective of women and public health:

> [Women need] primary caregivers who are trained to understand, promote, and sustain health. These caregivers would recognize the importance of nutritional, educational, social, psychological, and cultural factors. They would pay vigilant attention to mothers and babies, consult and refer when appropriate, and provide continuous, individualized care and a range of basic services. They would develop a trusting relationship with the woman and her support network.[14]

Nurse-midwives fit this characterization of the ideal maternity care provider quite well. Their focus on childbirth as a normal event has allowed nurse-midwives to address more than just the medical aspects of childbearing. While emphasizing educational and psychosocial care, the nurse-midwifery approach to maternity care allows for flexible, individualized care and the judicious use of medical technology.

One set of questions in the Public Citizen survey[3] asked respondents to review a list of 14 options in obstetric care and check those options their practices usually offer to clients. The 14 items, developed by the researchers through a review of the literature on childbirth and discussions with CNMs, represent examples of ways to make childbirth more comfortable or meaningful to women. The survey also asked which of the same set of options were usually offered to non-CNM clients at the hospital where members of the respondent's practice attended births.

The options range from allowing oral fluids during labor to encouraging breastfeeding on demand (Table 3). Eleven of 14 options were reported as usually offered to clients by over 90% of responding CNM practices. However, only three of 14 options were reported by over 90% of respondents as usually offered to non-CNM clients.

Offering these flexible options to nurse-midwifery clients reflects a commitment to individualized care, to facilitating the normal physiologic birth processes, and to family-centered maternity care.

Table 2. Number and percentage of live births in which selected obstetric procedures were used, United States, 1994

Obstetric procedure	*Number*	*Percent of all births*
Amniocentesis	123,188	3.1
Electronic fetal monitoring	3,146,757	79.6
Induction of labor	574,905	14.5
Ultrasound	2,396,461	60.6
Stimulation of labor	594,063	15.0
Cesarean delivery	830,517	21.2

NOTE: Data for obstetric procedures other than cesarean delivery based on 3,952,767 live births in 1994. Cesarean data based on 3,918,093 live births with a known method of delivery in 1994.

SOURCE: Reference 22.

Comparing outcomes. If the outcomes of nurse-midwife-assisted deliveries are equal to or better than those of births attended by physicians, there should be a strong cost bias toward relying on midwives for low-risk deliveries. A number of recent studies document that nurse-midwives are less reliant than physicians on technological interventions in the birth process, with no adverse effects on outcomes.

A recent retrospective study comparing 1056 low risk nurse-midwife-managed patients with 3551 low risk physician-managed patients delivered in the same setting found that nurse-midwife care is associated with a lower incidence of cesarean delivery: 9.8% of nurse-midwife patients required a cesarean delivery, compared to 12.3% of physician-managed patients.[15] Even when adjusting for ethnicity, age, parity, and birth weight, midwifery clients remained significantly less likely to have a cesarean. Nurse-midwife clients also were given epidural anesthesia significantly less often than physician-managed patients, they had significantly fewer operative deliveries, and their infants were not at higher risk of poorer outcomes for any of the infant outcomes studied. An acknowledged shortcoming of this study is its reliance on retrospective record review.

Another study, a randomized clinical trial, tested whether the low cesarean birth rate of a midwifery service was the result of selection bias and found no statistically significant difference in cesarean rates between CNM-managed and physician-managed groups.[16] This study randomly assigned 492 low risk women to either physician or midwifery management and found no difference in cesarean delivery rates; both groups had very low cesarean rates—2.1% for the nurse-midwives and 0.4% for the physicians. It should be noted, however, that this study was conducted at a large, inner-city hospital that had an overall cesarean rate of just 12.8% in 1992. (The national rate was 22.6% that year.) The physician-managed group did have significantly more operative deliveries, episiotomies, use of epidural anesthesia, and oxytocin augmentation. Similar neonatal outcomes were achieved by both groups.

Two recently published randomized controlled trials of midwifery care, one involving a pilot nurse-midwifery program in a Canadian city and the other comparing midwife-managed care with shared care (care divided among physicians and midwives) in Great Britain, concluded that midwifery programs reduce obstetrical interventions in low risk pregnant women. In the Canadian study all low risk women who requested and qualified for nurse-midwifery care were randomly assigned to receive care either from nurse-midwives (the experimental group) or physicians (the control group).[17] The rates of intervention in the nurse-midwife group were statistically lower for cesarean delivery, episiotomy, epidural anesthesia, ultrasound examinations, amniotomy, and intravenous drug administration during labor.

In the British study, 1299 pregnant women who were

screened at entry into prenatal care and found to have no medical or obstetrical complications were randomly assigned to midwife-managed care or shared care.[18] Obstetric interventions in the two groups were either similar or were lower in the midwife-managed group. Women in the midwife-managed group were less likely than those in the shared care group to have had labor induced or to have undergone an episiotomy. The study authors concluded that midwife-managed care "resulted in similar or reduced rates of interventions, similar outcomes, similar complications for mother and baby, and greater satisfaction with care."[18]

The fact that nurse-midwifery care results in outcomes similar to those achieved by physicians says much about the quality and safety of nurse-midwifery care. The U.S. Congress's Office of Technology Assessment, in a report reviewing the evidence on the quality and costs of care provided by CNMs, concluded that (emphasis in the original):

> *The weight of the evidence indicates that, within their areas of competence,... CNMs provide care whose quality is equivalent to that of care provided by physicians.* Moreover,...CNMs are more adept than physicians at providing services that depend on communication with patients and preventive actions.[19]

While emphasizing educational and psychosocial care, the nurse-midwifery approach to maternity care allows for flexible, individualized care and the judicious use of medical technology.

Restrictions on Nurse-Midwifery Practice

We have established that nurse-midwives provide more individualized care, that their care reduces the rate of medical interventions (and thus cost), and that the resulting outcomes are comparable to those in births attended by physicians. So what is holding the profession back? While the number of pregnant women

choosing nurse-midwifery care continues to grow, only a small fraction of those women who could benefit actually receive the services of nurse-midwives. Lack of awareness among consumers is part of the reason for this, but barriers to access also exist.

Although the practice of nurse-midwifery is permitted by legislation in all 50 states and the District of Columbia, a significant number of CNMs still must struggle for the acceptance and autonomy needed to practice. In the Public Citizen survey, respondents were asked whether they considered their nurse-midwifery practice to be restricted in any way and, if so, what the sources were of these restrictions. Sixty-four percent of the CNM practices in our sample (269 of 410) reported that their practices were restricted in some way.

State laws were the source of three notable restrictions: limitations on prescribing privileges, limitations on hospital admitting privileges, and lack of mandatory third-party reimbursement. State laws have a lot of control over how much autonomy a CNM is given. Some state laws require physician supervision of CNMs, but the definition of "supervision" is not always clear. Ambiguous state laws often leave individual hospitals and doctors to decide what CNMs can and cannot do. As a consequence, their ability to provide a nonmedical model of maternity care may suffer.

Survey respondents cited several restrictions based on hospital policies that hinder the ability of CNMs to give their clients a less intervention-oriented form of maternity care. In the quest to avoid risk, institutions often establish policies requiring a high level of intervention. For instance, hospital policies may require no oral fluids during labor, induction for premature rupture of membranes, continuous EFM and time limits for the second stage of labor. In many instances CNMs are given hospital delivery privileges but are not given admitting privileges; they must admit patients under their consultant physician's name leading to a tendency for physicians and hospital staff to assume a medical model of care for these patients.

Although most nurse-midwives have good working relationships with their consultant physicians, inappropriately restrictive physician back-up was frequently cited as limiting nurse-midwifery practices. Restrictive physician back-up may prohibit nurse-midwives from attending post-cesarean vaginal births, caring for higher risk patients who could benefit from co-managed care, and providing gynecological care.

Nurse-midwives cited other sources of restrictions: hospi-

Midwifery Care in 20th Century America

In the early years of this century, midwives attended about 40% of births in the United States, but by the early 1950s that proportion had fallen to just over 3%.[26] The rapid decline of midwifery care in the United States was a reflection of both the changing nature of U.S. health care during this period and deep-seated problems in the midwifery profession itself.

At the turn of the century, the field of midwifery was largely dominated by foreign-trained midwives (most of whom worked in the immigrant communities of large, northeastern cities) and informally trained or self-prepared midwives who worked in rural areas, mostly in the South and West. Midwives were essentially unorganized and often worked in isolation from the medical establishment. There were few midwifery training programs and no professional societies; largely unorganized, midwives found it difficult to adapt to the many changes that were occurring in the delivery of health care in the United States.

During the early decades of the 20th century, states were beginning to establish minimum requirements with respect to the education and training of midwives and for the supervision and regulation of their practices. Larger numbers of better trained and more skilled physicians were entering the field of obstetrics and they needed work. Initially used only for complications, the hospital became the preferred setting for childbirth. Favorable economic conditions and the growth of prepaid insurance plans allowed increasing numbers of families to afford both physician and hospital care. A campaign against midwifery by physicians went largely unanswered except by the Frontier Nursing Service and the Maternity Center Association, both of which served disadvantaged families. Independent midwifery care all but vanished.

In 1931, the Maternity Center Association opened in New York City—the first school of nurse-midwifery in the United States. Over the next 40 years nine additional schools opened, but the profession grew slowly until the American College of Obstetricians and Gynecologists recognized nurse-midwifery in a joint statement with the American College of Nurse-Midwives in 1971.[27]

Trained nurse-midwives represented something of a compromise between lay midwives, whom they increasingly replaced, and the medical profession. The regulatory environment governing midwifery care that emerged in the early part of this century ensured a measure of physician involvement and control. Yet, even with their education and the required physician supervision, nurse-midwives were often able to practice only among the poor and in areas where there were severe physician shortages.

Today all 50 states and the District of Columbia expressly permit the practice of nurse-midwifery. The increasing number of in-hospital births attended by CNMs since 1975 is a reflection of the growing acceptance of and demand for nurse-midwifery care (Table 1). In 1994, 196,977 newborns (5% of all in-hospital births) were delivered in hospitals with a nurse-midwife in attendance.

Table 3. Practices offering care options during labor and delivery, CNM survey, 1995 (*N*=356 CNM practices fully completing the survey)

Option	*Percent of practices reporting that option is usually offered to CNM patients*	*Percent of practices reporting that option is usually offered to non-CNM patients at the same hospital*
Oral fluids during labor	94.1	55.1[a]
Room to ambulate during labor	97.5	75.6[a]
Alternative birth rooms	92.1	86.0[a]
Partner in attendance	100.0	99.4
Friend(s) in attendance	98.6	85.1[a]
Use of shower, bath, or hot tub	92.7	52.3[a]
Encouragement of alternative positions for delivery	96.6	26.7[a]
Use of intermittent rather than continuous monitoring	94.4	33.7[a]
Delayed cord clamping	79.8	20.2[a]
Breastfeeding on demand	99.7	91.3[a]
Rooming in	95.8	93.3
Open postpartum visitation	84.0	81.7
Short stay (6 hours or less)	39.9	16.9[a]
Early discharge (24 hours or less)	91.0	75.8[a]

[a]Difference between CNM patients and non-CNM patients statistically significant ($P < 0.05$).
SOURCE: Reference 3.
CNM=certified nurse-midwife

tal nursing staff, the hospital physical plant, liability insurance requirements, health insurance companies that refuse to reimburse for gynecological care provided by CNMs and may refuse payment for labor care if a consultant physician was called in to do a forceps or cesarean delivery, and Joint Commission on Accreditation of Healthcare Organizations (JCAHO) standards that require physicians to "confirm or endorse" services provided by CNMs in the hospital.

Nurse-Midwifery in Florida

One state is aggressively promoting the use of CNMs. Florida sees CNMs as a cost-effective answer to a shortage of maternal health care providers. Working to remove some of the barriers to nurse-midwifery care, the state is advocating a CALL TO ACTION, a statewide initiative designed to promote the use of nurse-midwives and birth centers.[20] With the endorsement of the state Department of Health and Rehabilitative Services and the state Agency for Health Care Administration, the Florida Midwifery Resource Center has written a set of goals—and strategies for obtaining those goals—for midwifery care in Florida.

The Florida CALL TO ACTION has proposed three goals for the promotion of nurse-midwifery care. The first, and most ambitious, is to have midwifery care become the standard of practice in Florida for healthy pregnant women. As a measure of progress, the CALL TO ACTION suggests that 50% of healthy pregnant women in the state should be cared for by midwives by the year 2000. In order to meet this goal, however, the state of Florida will need more CNMs; therefore, the second goal is to educate 600 additional nurse-midwives in the state by the year 2000. The CALL TO ACTION's third goal is to promote the development of free-standing birth centers in Florida. Each of the strategies to promote this goal in some way involves passing of information about birth centers on to others. This process of education is expected to help birth centers experience fewer barriers in the development and maintenance of their practices.

Recommendations

What can be done to promote nurse-midwifery care as the national standard of care for low risk pregnant women? We offer three general recommendations to that end.

State laws and regulations governing the practice of nurse-midwifery should be reviewed to determine their impact on the provision of CNM services and revised to better encourage CNM care. The legislation and regulations that govern the practice of nurse-midwifery have an important influence on the degree of professional autonomy granted to CNMs. Where regulation prevents CNMs from obtaining hospital admitting privileges, prescriptive authority, or parity in third-party reimbursement, nurse-midwifery practices will have difficulty succeeding. States planning to shift Medicaid recipients into managed care organizations should consider ways to ensure continued access to CNMs by recipients.

More opportunities should be made available for the education of CNMs. According to the American College of Nurse-Midwifes, about 4500 CNMs were practicing in the United States in 1966. This is nowhere near the number of

CNMs that would be needed if nurse-midwifery care were acknowledged as the standard of care for low-risk pregnant women. Educating larger numbers will involve expanding the number and size of education programs, attracting faculty members by increasing faculty salaries, increasing the number of training sites, and finding new sources of funding for scholarships and loans to CNM students.[21] Expanding educational opportunities for CNMs should be done with the goal of gradually adjusting the ratios of nurse-midwife to obstetricians in maternity care.

Sustained public information campaigns on the quality, cost-effectiveness, and client satisfaction ratings of nurse-midwifery care should be implemented. Unfortunately, nurse-midwifery is not a widely known or understood profession in the United States even though the high quality of care provided by CNMs rates high in client satisfaction and represents a good value for health care dollars. Getting this message out to consumers, employers, providers, and public health personnel will be a crucial step in ensuring the universal acceptance of nurse-midwives as first line providers of maternity care services.

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